

TEST  
TRANSMISSION

SP7BLZ

AMATEUR  
TELEVISION

C Q — T V

THE JOURNAL OF

THE BRITISH AMATEUR

TELEVISION CLUB.

NO 95

august 1976



## The British Amateur Television Club.

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Grant Dixon (BATC SALES)  
G6ABC/T 38CGK \*  
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Andrew Hughes  
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\* Holder of Home Office permit to  
transmit SSTV in the authorised  
bands.

### WHO TO WRITE TO

Subscriptions and changes of  
address should be sent to the  
Treasurer, and membership  
enquiries to the Membership  
Secretary. Please only address  
your enquiries to the most  
suitable committee member,  
enclosing a s.a.e.

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### COVER PHOTO

Transmissions from SP7BLZ  
received at a distance of  
about 8 km.

## EDITORIAL

Club Sales is a very important section of B.A.T.C., serving the needs of amateurs by supplying them with items not generally available to the public. Grant Dixon has run this service for some time now, and our thanks must go to him for his labours. He in his turn would like to thank purchasers who, in these days of high postal charges, include adequate contributions towards postage and packing. Especial thanks to those who ask Grant to give any surplus to Club funds; these little extra sums make all the difference to Club finances!

Your Editor is at the moment working on a book to be entitled "An Introduction to Amateur Television", collating contributions by very many authors within the ranks of B.A.T.C. This extra work is unfortunately reducing the time available for producing this magazine, so may we offer apologies for reduced size and possible errors in this issue. As soon as the book is published later this year, affairs will return to normal.

In meeting and talking with members, I have always found a large proportion of amateurs have a particular way of approaching tv construction or operation which is not known to many others. For the good of all, this knowledge should perhaps be spread around, and what better way to do this than through C Q - T V . If you have any helpful advice, send it to the Editor ( Address on page 1 ) for inclusion in a column to be called "Helpful Hints".

### A Note To Overseas Members

The British banking system makes a charge for processing foreign cheques, and as these are for relatively small amounts it means that the Club receives far less than the normal exchange

rates.

About the only method of avoiding these charges is to pay subscriptions in currency, for example, dollar bills, as these can be exchanged 'over the counter' without incurring charges.

The Club would be grateful if overseas Members would be willing to do this (provided they are not contravening any currency regulations of their own country) and in particular Members from the U.S.A. as we buy items from America and lose out again when we have to purchase the dollars to pay for them.

BANKERS' ORDERS

Many Members have asked for new Bankers' orders since the subscriptions were increased. It is intended to print a Bankers' order form in the November issue of C Q - T V together with the subscription reminder.

However, Members may obtain blank forms from their own Bank, and the information to complete is as follows:

Pay to Lloyds Bank Ltd. Brigg  
(Code 30-91-23)  
For the Account of B.A.T.C.  
The sum of Two Pounds  
On 1st January each year  
Commencing on 1st January 1977

If you already have a Bankers' order at the wrong value, REMEMBER TO CANCEL THE OLD ONE!!

## ATV Repeaters in the UK

Several members have expressed an interest in trying to formulate a specification for an ATV repeater suitable

for use in the UK. Bringing a repeater project to a successfull fruition is a long and difficult task. We would be pleased to hear from any members who feel that they would like to be actively involved in preparing such a project so that it may be judged as to what support there might be. Members who would be interested in contributing towards such a project should in the first instance write to G6KQJ/T Malcolm Sparrow (address as per the inside front cover) giving details of how they would be able to assist in such a project together with any ideas which they may have on this subject.



B.A.T.C. LIBRARY

The Librarian, Grant Dixon, would like to record grateful thanks for the following donations:

1. Technical manuals from J.B. Good, BRE, Co. Wicklow, Eire.
2. A cassette tape of the article in C Q - T V on SSTV contacts between Gilwell Park and "Nordjamb" in Norway. This cassette contains a recording by the King of Sweden and may be borrowed from Grant. It would be particularly interesting for scout groups.
3. A reel tape of colour SSTV made by Peter Helm G8AWN. (A cassette copy is in the course of preparation). Pictures are recorded with one frame of each primary colour in sequence. Although C Q - T V cannot reproduce in colour the illustrations may give an idea of results achieved by setting up the camera and exposing for three frames with colour filters switched by hand in front of the lens. Peter would be interested to hear of others who are engaged in this technique.

## Letters to the Editor

Dear Sir,

I have just received C Q - T V 94 and I feel I must comment on page 6. You have credited me with dsigning the C Q - T V SPG. I am VERY flattered by this, but our old friend Arthur Critchley is of course responsible for this design. The SPG circuit boards are available through Grant Dixon - if on the other hand Mr. McConnell wants to make the vision mixing extra bits as in C Q - T V 92, pages 6-7, then I would be pleased to arrange this, at cost. You are welcome to print my address for those interested or to forward it to Mr. McConnell. (Although there is a possibility I may be moving in August or September).

Peter Delaney G3KZG  
4 Shelley Close,  
Woodley,  
Reading, Berkshire.  
RG5 3RN

.....

Dear Sir,

Just a wee line to let the members know whats happening in GI, on SSTV and FS seems to be 2 or 3 amateurs with monitors and as far as I know one other with a camera. There's no apparent FS activity that I've seen.

I'm running on SSTV a 70A modded up to 70D an 80A, with a home-made key board and reel to reel tape. On FS I use a Pye Lynx, a Pye Telescins, home-made test signs, the C Q - T V SPG with genlock and colour pulses, monitors are Marconi pix/W.F. and Rank, Tx is 4CX250 into a 45 element at 60'. So far no signals have been seen from any other station on FS, however, we live in hope!

At present I have almost finished Wx satellite converter for Robot Monitor, and hope to start slow/fast con-

verter soon.

So don't forget Northern Ireland you ATVers. Hope to see you all 4th and 5th and 11th and 12 of September.

Allen McMurtry G15AJB/T G13MBB  
20 Towseview Crescent,  
Bangor, Co. Down.  
Northern Ireland.

\*\*\*\*\*

Dear Sir,

I am a recent member of the B.A.T.C. and of the several "C Q - T V"s I have aquired, none have made reference to the south east concerning atv.

I am soon also to join the ranks in the area.

The rig for my part will consist of a valve 144MHz exciter followed by a 3'20/3'20 tripler/modulated P.A. and hope to run 10 watts pk. sync. The camera is a modified "lynx" and on receive I have a 15" hybrid P/I/E Rx with ELC1043/05 front end and a Phillips 12" portable (also with 1043).

Moving onto the stations in the area are:

Dave G6AMD/T G8GKQ Penge  
Bill G6TDG/T G3TUG Penge  
Alan G5ALB/T G8GOJ S. Croydon  
Ian G6AGA/T G8CQE Croydon  
Phil G6AIN/T G4EGU Erith  
Tony G6AMS/T G8DEK Essex.

So as you see, there is quite a level of interest but not so much occupation of the ether.

Mark Atherton G6ANI/T G8JVX

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Dear Sir,

It is with considereable interest, both as sound and future vision operators, that we note the current correspondence regarding the 70cms sound repeater problem.

Having jointly decided a year ago to design and build tv rigs for 23cm,

we concluded that even then the 70cm band was far too crowded for a broadcast-standard colour signal (particularly with the addition of 6MHz intercarrier sound).

The point of writing this letter is not, however, to sell out those at present actively operating on 70cm, or indeed to knock the frequency allocation for the sound repeaters; instead we would urge very strongly the use of 23cm. (or higher) for future projects. Our reasoning is and was as follows:

1. 23cm allows plenty of space for several 8MHz-wide CCIR standard signals without mutual interference or mode wars.
2. 23cm allows for future tv repeater experiments.
3. With the growing demand for commercial mobiles etc., it is probably a matter of time before the amateur allocation at 70cm is severely pruned anyway.
4. With higher frequency bands, the chances of causing interference to domestic equipment is very much reduced.

As these arguments are by way of flying a kite, we should be very interested to hear the views of others, particularly those with new stations on the drawing board.

John Wilson G8KIS      Richard Lambley G8LAM  
25 Quarrendon Road, 61 Falkland Park Ave.,  
Amersham, Bucks.      London. SE25 6SQ

In reply to our members letters the Committee would like to point out that not all of the points to date in our members letters to the Editor are correct and in order to set the record straight, we would point out the following:

The recommended calling frequency on the 144 MHz band with other operators with similar interests in ATV is 144.75 MHz, this frequency having been agreed with our continental friends and

also agreed in conjunction with the R.S.G.B. VHF committee. 144.23 MHz is also used for SSTV transmissions on the band.

The B.A.T.C. Committee do realise that 432 MHz Repeaters are planned and are now starting to appear on the same part of the 432 MHz spectrum as previously the ATV transmitting members used more or less exclusively. The committee has been carefully following the progress of the 432 MHz repeater position and far from not defending our position we have been actively engaged in trying to make it possible for both types of activities to co-exist with the minimum of mutual interference to each other.

Tests have been specifically carried out between ATV transmissions and repeater operators and so far it has been shown that the two types of transmissions can operate alongs de each other.

At least one of the B.A.T.C. Committee members is actively engaged in both ATV transmissions and construction of a 432 MHz repeater and so we can see both sides of the problems which occur.

The repeater output frequencies have been deliberately chosen to be below that of the input frequencies so as amongst other things to minimise interference with ATV transmissions.

The B.A.T.C. Committee has direct representation on the R.S.G.B. VHF Committee and so is fully aware of the position on VHF-UHF frequency planning and the comment that one man, ON4ZN can propose without anyone being able to prevent him plans which will directly affect all British Amateurs, is quoted out of context. The R.S.G.B. delegation to the Warsaw IARU Conference were fully briefed prior to going to the Conference on the ATV position and requirements and fully supported us at the Conference.

With regard to the 23cm band for ATV transmission, the Editor would be pleased to report on any experiments taking place so as to encourage others hoping to

experiment in this region. There are obvious advantages in using this band for ATV transmissions as pointed out in one of the letters published in this issue of C Q - T V but there are also the problems associated with generating sufficient power at this frequency and also the smaller transmission range which can be expected.

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## **POSTBAG**

J.H. Hinton of 64 St. Albans Road, Cambridge CB4 2HG wrote to say that he recently built the Wireless World Teletext Decoder from the Catronics Kit, but encountered severe problems. It seems that the original design did not allow for certain variations in I.C. parameters permitted by the manufacturers, and Mr. Hinton spent some considerable time working on modifications to get his unit working well. He suggests that if any member were considering building this unit he might save himself much time by contacting Mr. Hinton first.

H.A. Cox in Camberley, Surrey possesses a c.r.t. made by ETEL Type 5CLP11, and wishes to know the base connections. He wrote to the manufacturers, but the letter was returned, so he assumes to firm has been liquidated or been taken over. If anyone does know the base wiring of this tube, Mr. Cox would be very grateful to hear from them. His address is 186 Frimley Road, should you be able to help.

# COMBINED CROSSHATCH & DOT GENERATOR.

By Alan R. Watson

The unit to be described was developed as part of a complete system for the testing and setting up of monitors etc.

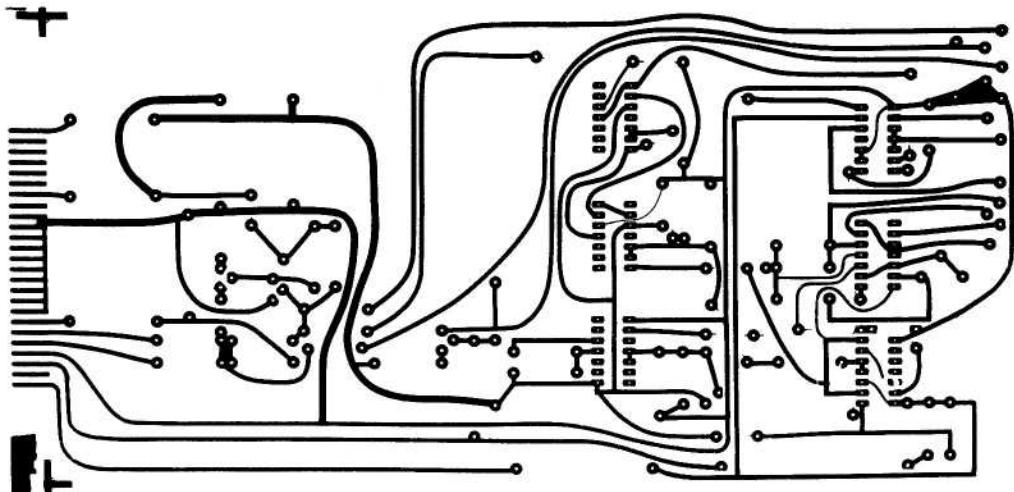
Still being developed are the colour bar generator and coder - ultimately for use in a complete camera channel. When sorted out and tested, these two will be published.

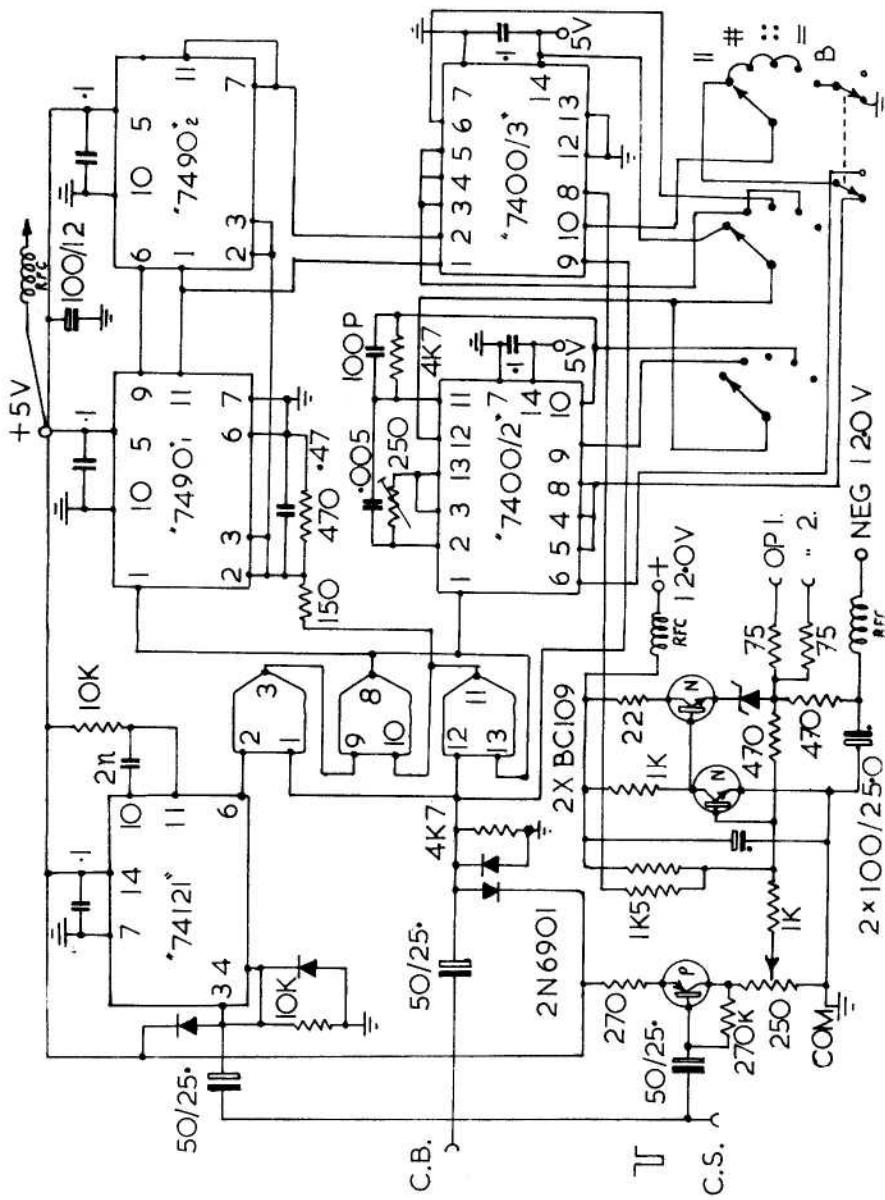
The pattern generator is driven by combined syncs and blanking from an interlaced 625 line S.P.G. and gives at its output a broadcast quality signal, with sync amplitude variable from 0 to well over 30%, comprising horizontal and vertical bars, cross-hatch, dots, black on white and white on black. A blank raster and a peak white raster are also available.

All services are controlled by just three controls on the front panel. Two isolated 75 ohm outputs are available. The unit operates from +12 volts d.c., -12 volts d.c. and +5 volts d.c. from the main stabilised power supply which feeds the whole system.

#### Circuit Description

Combined syncs are fed through a 74121 monostable multivibrator, giving a broader line pulse out, and then gated with combined blanking in 7400/1 to miss out the half line on alternate fields enabling a rock steady pattern to be obtained. The negative output is taken through two 7490 decade counters; each of these is reset at the end of each field, to give a locked horizontal pattern, with positive syncs from 7400/1 integrated so as only to give field pulses.





Negative line pulses from 7400/1 are fed to pin 1 of 7400/2, which is coupled as a multivib; this gives 10 to 25 times line frequency adjustable by a 250 ohm pot.

Blanking and gating of waveforms are done in 7400/3. Patterns are selected by means of a 5-way 3 pole wafer switch and a D.P.D.T. toggle switch.

The inverted blanked output is taken to a virtual earth adder output amplifier, where it is mixed with inverted variable amplitude syncs. The zener diode in the emitter of TR3 was chosen to set the output at earth potential; thus no coupling capacitors are required. This d.c. coupling ensures no l.f. tilt on the output.

#### Construction

In the original unit the whole circuit was made up on a printed board, with a piece of aluminium bolted to it on spacers to enable the complete assembly to be slid into an I.S.E.P. frame. The p.c. board layout is shown for members who may wish to make their own. No links are shown on this photograph for the sake of clarity - but it should be obvious from a study of the circuit where these should go.

Should sufficient members be interested it may be possible to produce a p.c.b. Please contact the author (whose address is printed on page 1 of this issue) if you are. Such a board would not unfortunately be roller tinned.

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#### PYE EQUIPMENT MANUALS

Brian Summers has recently acquired a very large number of handbooks for Pye television and sound equipment. If you have some of this gear and would like some information on it, one of these books may be just what you are after. A list is printed below; if what you require is there, send £1 (or three dollars) to cover postage and packing to Brian at 13 Church Street, Gainsborough, Lincs.

Distribution amplifier 844588

Gram. unit 848004

Tele tutor Viewfinder camera 848006

Hor. and Vert. driver unit 848056/01

25" receiver monitor 848007/20

Caption scanner 4600 & 4601 Vols. 1 & 2

Caption scanner 4128/00

4½" IO Cam. 842131 Vols. 2 & 3

3" IO Cam. 842042 Vols. 2 no circuits

Reactor camera 2889/00

Reactor inspection camera 842887/02

Staticon Broadcast camera Vols. 2 & 1 no circuits.

Mk IV series III TV equipment Operators Handbook no circuits

Colour Tele Cine camera 2631

Tele Cine control panel 1640

Vidicon telecine equipment control consort 4150/01 & 02

Staticon Telecine equipment 16mm projector 4175  
 Test signal gen. 2690 and 2691  
 Window gen. 3682  
 Pattern gen. 3684  
 Multiburst gen. 3687  
 Greyscale gen. 2693  
 Mobile control Room 4013 vols. 1 & 2  
 Colour Mobile Control room BBC Vols. 1 to 6 inclusive  
 Mixer 2410  
 Stab. amplifier 4095  
 Sync. pulse gen. 2520  
 Sync. pulse gen. 2573 & 2575 & 2577  
 Master slaving unit 3000 vols 1 & 2  
 Power unit 3921  
 Power unit 2348  
 Power unit 3953  
 Combining unit (transmitter) 846308/02  
 20kW transmitter 6304  
 Mobile VHF test load 6300  
 RF sender 3720  
 Mt. Kippure TV Station installation  
 Launceston TV Station Transmitter installation  
 17" 6-channel Video Monitor Type 171  
 Video switching unit 2433  
 Zoom Tele camera lens 2288  
 Light Pan & Tilt 3560  
 Light Pan & Tilt 2391  
 Heavy duty pan & tilt systems

Some of the above manuals do not include circuits or have circuits relating to part of the complete systems e.g. the Tele Tutor Manual has no camera circuits in it these being found in the Lynx manual to which the camera is related. Other manuals should have circuits which are unfortunately missing.

In addition to those listed above I have about 20 varieties of audio manuals. Please enquire, Pye only.

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## TV ON THE AIR

By John L. Wood G6AHT/T G3YQC

The Watford area is back in the news from Gary Shipton G6ALH/T. G4CRJ, gives further information on the high level of local activity.

The "Colne Valley Nett" assembles every Saturday evening around 8pm on 70cm and continues well into the night. Regular stations on the net are G6ALH/T G4CRJ, G6ALC/T G4CRO, G6AME/T G4EEI, G6GDR/T G3GDR, G6AIQ/T G4CNH and more recently G6AMC/T G8BEJ. All transmit 625 line negative modulation with the exception of G6GDR/T who uses the 405 line positive standard.

G6ALH/T and G6ALC/T have designed an automatic morse code TV display unit which displays the received letters on a standard monitor, a variation of this unit with perhaps a keyboard input could be very useful indeed to TVers.

G6AME/T has a novel method of presenting captions; he uses a hexagonal drum into which letters can be slotted. The drum is rotated to change the caption.

During the great October tropospheric opening of 1975 both G6ALH/T and G6ALC/T reported receiving noise free pictures from DCOFW and F3YX. Photos were taken from the screen at the time. I wonder if any one else saw or worked similar DX?

Now that summer is here some of you will be going out portable, don't forget that Mike Cook G6AMB/T (WTHR) may be able to help with details of Home Office "cleared" sites. Also Mike would like details of their sites cleared for use to add to the list.

It would seem that many stations are very concerned about the close proximity of the 70cm sound repeaters which seem to be springing up everywhere, as the repeater frequencies are perilously close to our already established TV working frequencies, those closest to the repeater sites could very well experience co-channel interference problems, however, whilst being actively concerned with the possible intrusion into TV activity it is not the purpose of this column to enter into a controversial "wrangle". Letters on this subject would be welcome by the editor of C Q - T V.

Now some more active TV stations which may be of interest: G6RKU/T West Bromwich, G6ALD/T, G6AFI/T Pinner, G6AFV/T G5KS Warley Worcs., G6AIE/T Shrewsbury and G6AMC/T Camberley. G3IAI of Northampton and G5DF Reading also receive TV as does G8HET of Stourbridge who has just got going, welcome to fast scan Bob!

A couple of reminders now; as this is the season for tropospheric openings be sure to keep a sharp eye on the bands, as soon as there is the slightest sign of a lift put out lots of calls on the 2 meter calling frequencies (144.23 and 144.75 MHz) and also on 70cm sound and vision. If you see a picture but can't raise the station send him a report anyway. He will then know that it was worth while going on, and will look for you next time, if lots of people do this there will be many extra TV QSOs made this year.

Finally, don't forget the ATV contest on the 11th and 12th September. Last years turnout, to put it bluntly, was disasterous. It will be no use complaining later that other people are taking our bands if we can't be seen to be using them. So if you possibly can, come on for at least some of the contest and above all PUT IN AN ENTRY, even if you have only worked one station. Let's try and give those Germans a run for their money this year for a change.

Please send correspondence for this column to "TV On The Air", 54 Elkington Road, Yelvertoft, Northampton, NN6 7LU.



# B. A. T. C.

## BALANCE SHEET AT 31ST DECEMBER 1975

<u>RESOURCES of the CLUB</u>	<u>Year ended 31.12.75</u>	<u>Year ended 31.12.74</u>
Accumulated Fund:		
Balance at 1st January 1975	1405.53	1196
General Account Surplus/(Deficit)	(-102.44)	187
Trading Account Surplus	<u>72.34</u>	<u>22</u> 209
Balance at 31st December 1975	<u>1375.43</u>	<u>1405</u>
Represented by:		
<u>FIXED ASSETS</u>		
Office Equipment at 1.1.75	54.00	
<u>Less Depreciation</u>	<u>11.00</u> 43.00	54
<u>CURRENT ASSETS</u>		
Stocks: Trading	258.76	155
C Q - T V Magazines	24.97	19
SSTV Booklets	20.00	50
SSTV Handbooks	116.80	87
Stationery	<u>220.86</u>	<u>12</u>
	641.39	330
Debtors	25.00	45
Balance with Bankers	272.39	73
Balance with Giro Account	21.70	8
Balance with Building Society	<u>944.22</u>	<u>1269</u>
	<u>1904.70</u>	<u>1725</u>
<u>Less CURRENT LIABILITIES</u>		
Creditors	364.47	85
Subscriptions paid in advance	<u>207.80</u>	<u>289</u>
	<u>572.27</u>	<u>374</u>
<u>NET CURRENT ASSETS</u>	<u>1332.43</u>	<u>1351</u>
	<u>1375.43</u>	<u>1405</u>

The above balance sheet at 31st December 1975, together with the Trading and General Accounts for the year ended on that date, are in accordance with the books of the Club as produced to me and, to the best of my knowledge and belief, show a true and fair view of the position of the Club at 31st December 1975 and of the results for the year.

BRIGG  
18th April 1976

J.R. Gregory  
Chartered Accountant

# ACCOUNTS.

## Statement of Accounts For The Year Ended 31st December 1975

### GENERAL ACCOUNT

INCOME	Year ended 31.12.75.	Year ended 31.12.74.
Subscriptions: Current	876.35	922
Arrears	12.30	14
Donations	1.00	-
Sales of C Q - T V	123.09	128
Advertising in C Q - T V	0.00	49
Building Society Interest	<u>74.70</u>	1087.44
Sales of SSTV Booklets	49.25	46
Sales of SSTV Handbooks	<u>198.00</u>	456
	247.25	502
<u>Less Cost</u>	<u>154.00</u>	93.25
Receipts from SSTV Convention	88.09	460
<u>Less Costs</u>	<u>88.09</u>	0.00
		42
	1180.69	1235
EXPENDITURE		
4 Issues of C Q - T V	739.56	666
Postage and envelopes	<u>368.07</u>	258
	1107.63	924
General Postages	162.30	51
R.S.G.B. Affiliation Fee	2.20	2
Show expenses	0.00	21
General Meeting Expenses	0.00	37
Depreciation of Office equipment	<u>11.00</u>	1283.13
SURPLUS/(DEFICIT) for the Year	(- 102.44)	187

### TRADING ACCOUNT

Sales of equipment	512.34	492
<u>Less Cost:</u> Stock at 1.1.75	154.51	198
Purchased	<u>514.25</u>	426
	698.76	624
Stock at 31.12.75	<u>258.76</u>	154
	440.00	470
	<u>72.34</u>	22

# 1976

## BATC Convention

### CONVENTION NEWS

Don't forget the place and date:  
Parkinson Court, Leeds University, 10.30  
on Saturday 18th September 1976.

As well as South Parkinson Court, the Club will have the use of two meeting rooms. Those wishing to display their own equipment are reminded that they should provide their own mains leads and distribution boards, and accept complete liability for the gear; the B.A.T.C. can accept no responsibility for damage to or by members' property.

Stands in the Exhibition Hall will be:

M & B Components

Bamber Electronics

J. Birkett

B.A.T.C. Club Sales

B.A.T.C. Publications

Members Bring & Buy

Ceefax/Oracle demonstration

DL2RZ

At the A.G.M. fully paid-up members of B.A.T.C. only will be allowed to participate. The agenda is as follows:-

1. Apologies for absence
2. Minutes of the previous General Meeting
3. Treasurer's Report and adoption of the Accounts for 1974 and 1975
4. Treasurer's Report on the current year to date.
5. Chairman's Report
6. Resolutions received in writing
  - a. Club subscriptions: should we have an admission fee for new members?

- b. Amateur Television Contests: what do members want?
7. Any other business relevant to the retiring Committee
8. Election of Committee members
9. Announcement of the Constitution of the new Committee
10. Any other business

### Proposed Amendment to the Constitution

"That the Club charge an entrance fee for Members joining or re-joining the Club, the amount to be such sum as the General Meeting/Committee shall from time to time decide".

NOTE SEPTEMBER 18th

IN YOUR DIARY NOW!



# LETTER FROM POLAND.

By Lech Domasik SP7BLZ

Our group in Lodz, Poland, who are interested in amateur television consists of Czeslaw Maszowski SP7DKA, Włodzimierz Wypych SP7DQV, Wiktor Gags SP7EBM, and myself SP7BLZ. We have been lucky to acquire some old professional equipment, and our first concern has been to get this working. At the moment we have two working cameras, two camera control units, a sync pulse generator, a picture and waveform monitor, a chessboard generator, five monitors and a mixer, a linear amplifier and a 10watt 430 MHz transmitter.

We have plans for the future which include at least partly transistorising the apparatus, especially the cameras and the S.P.G. Also we would like to build a new transmitter with a 50 watt PA capable of simultaneous sound and vision, and erect a multidirectional aerial with high gain.

I don't know if I will be able to realise all these plans myself, (I rely on a heart pacemaker, although mostly I feel very well), but I believe my colleagues will continue the work connected with amateur tv. The photographs will give you some idea of what we have achieved so far.

In the future I would like to send some details of our work, which has been going on for some years now.

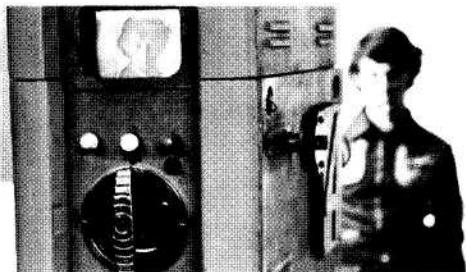
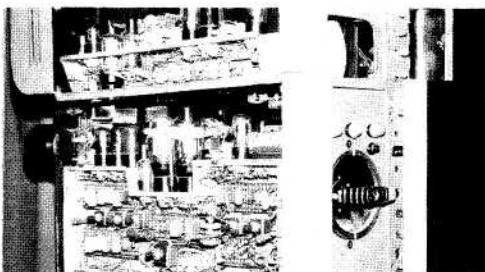
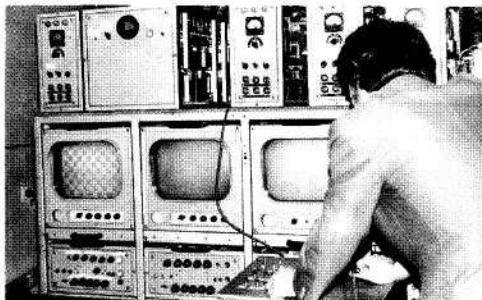


Image orthicon camera with SP7BLZ on the viewfinder



Line and frame generators of camera and viewfinder



MK1224 Monitor with SP7DKA and SP7BLZ



General view of tv apparatus

## SSTV OUTPUT CIRCUIT.

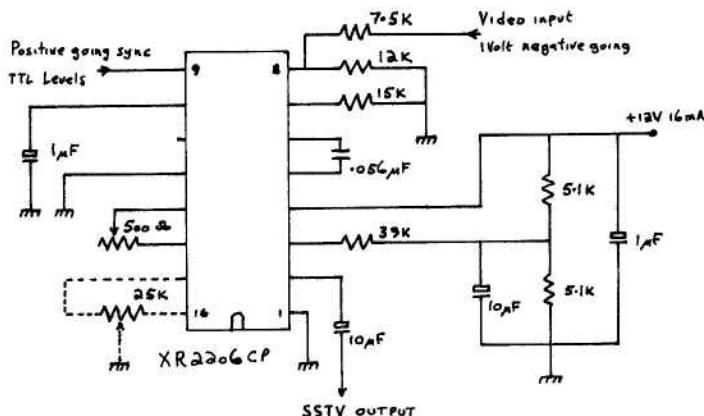
By Lewis Elter

A useful integrated circuit for TV work is the XR2206CP waveform generator manufactured by Exar Integrated Systems of California and available in Britain from Rastra Electronics. It can be used to generate sine, square, triangular, sawtooth and pulse waveforms up to 1MHz and can be amplitude and frequency modulated. The circuit shows how it can be used to generate the F.M. output signal from a SSTV camera.

The timing capacitor is connected to pins 5 and 6, and either one of two timing resistors connected to pins 7 and 8 can be selected. A low T.T.L. level on pin 9 selects the timing resistor connected to pin 7. This facility is used here to switch between the sync and video output frequencies. A sync pulse applied to pin 9 will select the timing resistor connected to pin 7 and this therefore governs the 1200 Hz sync frequency. In the absence of a sync pulse the timing resistors connected to pin 8 will be selected and these govern the video output frequency which can be varied by applying the video input as shown. The actual video potential must be direct coupled and swing from 3 volts black to 2 volts white.

The 500 ohm potentiometer connected to pins 13 and 14 governs the shape of the output waveform. With no video or sync input the potentiometer should be adjusted for the best sine waveform on pin 2. This potentiometer could then be replaced by a fixed resistor once the optimum value has been found. The optional balancing potentiometer shown dotted between pins 15 and 16 can be used to reduce the distortion still further. It should be adjusted after carrying out the adjustments to the 500 ohm potentiometer.

The output on pin 2 is of sine waveform and so no extra filtering is required. Its amplitude is about 2 volts peak unloaded and can be altered by changing the value of the 39K resistor connected to pin 3.

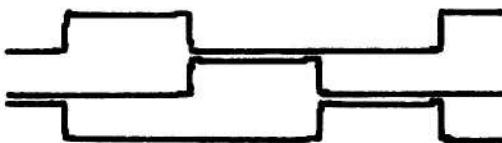


# CRT DISPLAY FOR ADJUSTING FAST-SLOW SCAN CONVERTERS.

By C. Grant Dixon

There are several scan converter designs in which a normal fast scan video signal is digitised and appropriate lines are fed at high speed into four parallel shift registers. The contents are then clocked out slowly to constitute a slow scan line. WØLMD published a design for this which apparently was excellent on 60Hz, but proved somewhat intractable on 50Hz mains. A simpler design which gives excellent results was produced by DL2RZ. In both of these designs two DC levels are adjusted so that they sit at black and white levels of the video waveform - the signal in between is then sampled at 16 levels and decoded to give a 4 digit gray code representation of the instantaneous brightness level. The adjustment of the two potentiometers labelled "black clip" and "white clip" is usually done by inspecting the picture, but this is rather tedious. The circuit shown is a 3-way electronic switch which samples white level, black level and video in turn. The resulting signal is then displayed on the 'scope and the video waveform can be seen between two parallel dotted lines which are the clipping levels. As a whole, fast scan frame can be displayed on the 'scope it is possible to get an immediate adjustment as peak white and black levels can easily be seen.

The 7474 is wired as a  $\times 3$  counter and two outputs are taken and mixed in an OR gate to give a third signal - these three are all positive-going signals in sequence and they are used to switch three gates of the 4016.



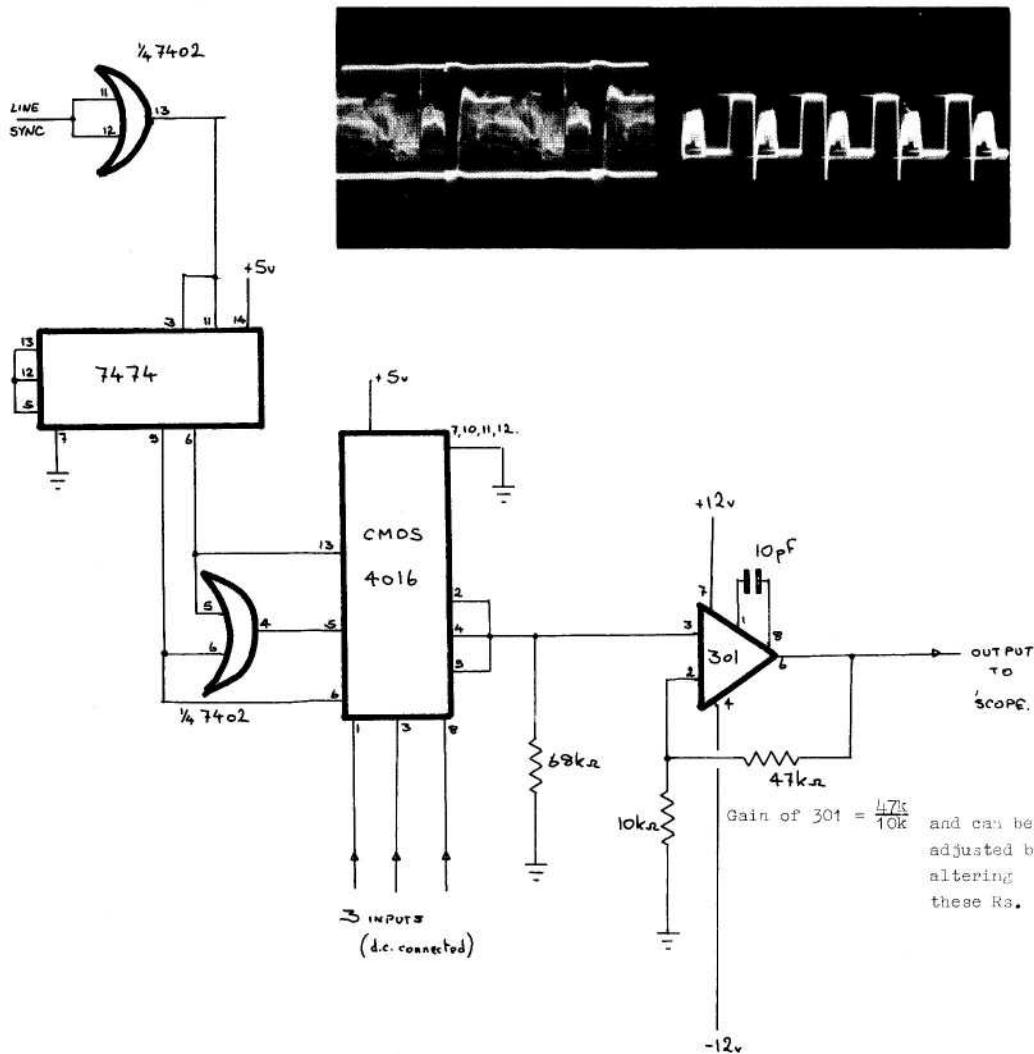
The outputs of these gates are all tied to a 68K resistor and the signal is then amplified by the 301 op-amp. A 741 would do at a pinch.

It will be noted that every third line of video is sampled; this seems to be quite adequate to show where the white and black areas of the picture are to be found.

It would be possible to run the clock at high frequency but experience shows that this gives rise to more patterning which spoils the display.

The line pulse input is taken from pin 5 of IC 14 of the DL2RZ converter and it is con-

venient to pass it through one of the 7402 gates as a buffer before feeding it to the 7474. The two DC levels are taken from the extremities of the chain of resistors in the digitising section and the video input is taken from the point where it is fed into all the 711 level detectors.

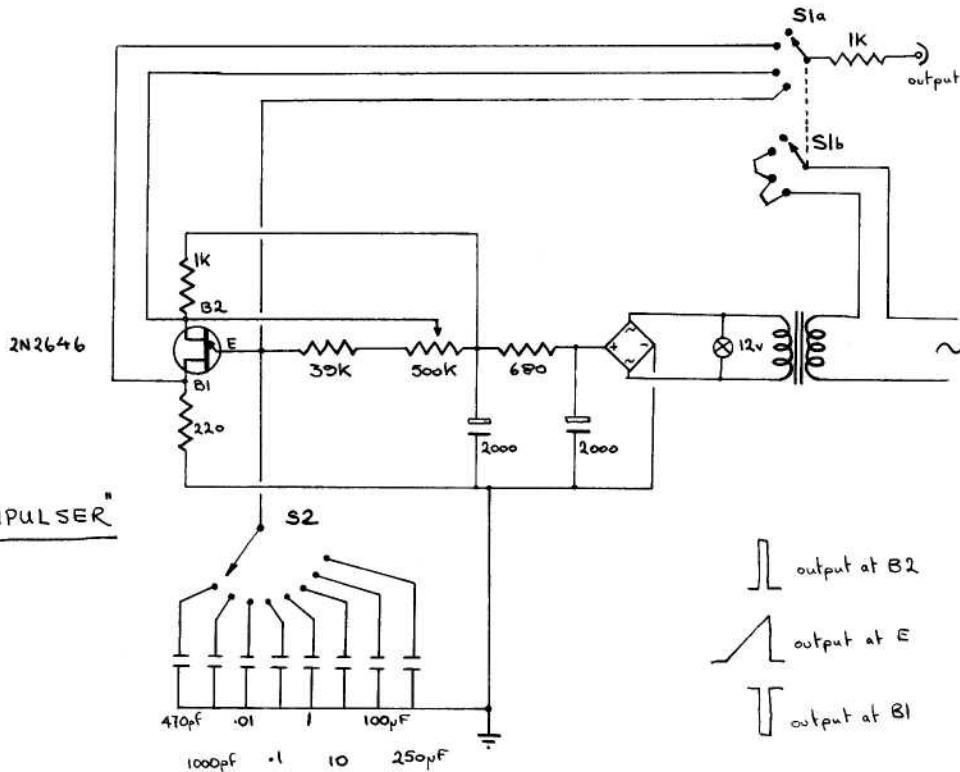


# A MINI PULSER

By J. Brown G3LPB

The writer an ardent constructor always has one or two projects on the go at the same time. There was a need during some keyboard and slow scan experiments for a reasonable accurate pulse supply unit. I.C.s were tried with success but to make a completely variable setup brought problems. So a think from the past brought really just a modification of Gordon G3LEE mod to the RHI monitor to light.

After construction it was reasonably well calibrated and has found its way to carry out duties from all sorts of fields of jobs. From bird scarers, photo timers, door alarms, weird noises a la Dr. Who and I feel once built many ideas come to mind. It will produce some excellent drive for rasters for slow scan and fast scan as we can select outputs which give us a DC pulse of negative, positive and saw tooth polarities, just by turning a switch.



As shown we can have a range (small value cap) of over 26KCS to one pulse every 10 mins or so (large cap). With a 1000 uF in the switched line, the time waited was so long it was decided NOT to fit this capacity!

The 1Kohm in series with the select switch is to stop the UJ going into orbit when connected to a almost S/C, and to ensure oscillation (charging up at almost all times).

As the cct is self explanatory, we will not go into details. The unijunction used was a N2646, I have tried no others as these were available. The condensers should be tested for leakage as they have to be GOOD ones.

The power supply can even be battery of 9 volts or a small mains unit to make the cct self contained.

#### COMPONENTS

Transformers 250AC primary with 12VAC secondary

Rectifier either a small bridge type OR 4 -IN4002

Smoothing 2 capacitors 2000uF abouts.

1-680 ohm 1 watt resistor

1 500K variable carbon pot preferably linear type BUT NOT necessary

1 3.9K  $\frac{1}{2}$  watt carbon resistor (series with var pot)

1 2N2646 unijunction transistor

Capacitors for selector

470 pf, 1000pf., 01..1, 1uf, 10uf, 100uf, 250uf.

1 1K  $\frac{1}{2}$  watt (series with S1a)

S1A/B 4 way double pole yaxley type.

S1a selects the output either pos, neg or sawtooth

S1b switches power on and off

S2 is a 12 way single pole but only uses as shown 8 positions.

B2 resistor 1K $\frac{1}{2}$ watt B1 resistor 220 ohms  $\frac{1}{2}$  watt

All required bits available from J. Hartley 78B High Street, Bridgenorth, Shropshire, even to the aluminium boxes.

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#### FUTURE CONTESTS

SLOW SCAN;

September 4th & 5th: 1st Albatross Contest.

FAST SCAN;

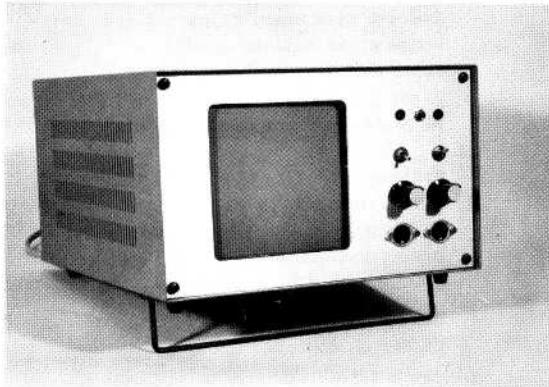
September 11th & 12th: International atv Contest.

# A MODIFICATION TO THE MARCONI MKIII PSU.

Prepared by Brian Summers G6AJU/T

The Marconi PSU (BD630D) was intended to supply the Mk III camera channel with all power including focus current in the 3" tube version, but the 4½" camera was meant to have an external supply of 140 mA current stabilized fed into pin 9 of SKJ on the CCU. The PSU in its original form is capable of supplying 75 mA focus current, but this can be increased by the following modifications:

1. Replace the valve H.T. Rectifiers with Silicon Rectifiers 4 IN4007 or similar. (Saves heater current so keeps transformer VA the same).
2. Adjust R64 (the large Reostat on the back of the chassis) to give 330v+ of unregulated HT output (Pin 6 SKB) (Measure with PSU loaded by camera channel).
3. Replace R76 in anode circuit of V12 with 100 ohms 5W.
4. Replace R33 with 1 Kohm 10W preset. Set to 700 ohms.
5. The grid of V13 may need to be connected to the junction of R16 (47K) and R69 (47K) instead of the junction of R62 (22K) and R69.
6. Connect pins 9 and 3 of SKJ on CCU together.
7. Measure and adjust focus current to 140 mA by use of R33 as coarse and R36 fine.



The photo on the left is the first prize in the Albatross SSTV contest on September 4th and 5th.

As announced in the last issue, this SSTV Converter has been presented as a prize by A.E.C. of Bologna.

## ADVERTS

### FOR SALE

Closed circuit tv cameras and monitors.  
Enquire for prices and availability.

M. J. Sparrow  
64 Showell Lane  
Penn, Wolverhampton  
Staffs.  
Tel. Wombourne (09077) 3037

### WANTED

To buy or borrow,  
Good reliable circuit for Colour Encoder, preferably Broadcast standard, willing to copy circuit and send back by return plus any expenses incurred.

Alan R. Watson  
Searby View,  
Bigby, Barnetby,  
Sth. Humberside.  
DN38 6EU  
Tel. Searby 347

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### FOR SALE

Pair of Marconi Mk 3 studio cameras  
Also a variety of spares and accessories including tube lenses and monitors.

D. Beale,  
The Croft,  
Wrekenton,  
Gateshead, Co. Durham  
NE9 7BJ

\*\*\*\*\*

### WANTED

An interlise module type 8928 000 20100 or equivalent for a PYE Super Lynx camera Type LDM0001

J. Spencer G6ATH/T  
The Banks,  
Hesket Newmarket,  
Wigton, Cumbria.  
CA7 8JG  
Tel. Evenings 06998 419  
Day 090082 3300

### FOR SALE

Vidicon Camera Tubes Sep. Mesh	£8
Plumbicon Camera Tubes P8001 YRG and B XQ1020, very slight blemishes	£15
Plumbicon Camera Tubes 55875 Int. Mesh as used in W7ABW Camera in SSTV Handbook	£15
Dallmeyer Super Six TV Lens 50mm and 75mm fixed focus c-mount 16mm	£12
Spacemar Mon. P/C boards most components and transistors fitted	£10
5PP7 crt with suitable scanning coils	£5
7FF7 crt with suitable scanning coils	£7
Allen McMurtry GI3MBB GI6AIB/T	
20 Towerview Crescent, Bangor, Co. Down, BT19 2BA N. Ireland.	
Tel. 61946	

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### Marconi Mk 3 Equipment For SALE

25" Lens in carry-case	£10
8" lens	£6
Portable case PSU	£5
CCU	£8
CCU remains of	£2
Line clamp amplifier rack	£3
Viewfinder	£8
PSU 400mA rack 250v	£3
4½" yoke	£5
Carrying case with 4 camera spare chassis	
Pan and tilt head, films and industries wedge plate fitting	£12
Sound and Vision RX 405 line	£7
Mixer 8-way simple. Rough condition	£6
Mk 3 camera cable various lengths	BY

### WEIGHT

Vidicon camera surveillance type 625 line with lens. Working order	£38
Mk 3 I.O. Camera complete with PSU, CQU, Cable, Viewfinder, Monitor, circuits, lens.	

B. Summers 13 Church Street, Gainsborough, Lincs.	
Tel 2802 3940	

## Club Sales Price List

Camera tubes 1"	P849	English Electric	Amateur Grade	<u>Price</u>	<u>Post &amp; Packing</u>
9677	E.M.I.		Amateur Grade	£11.55	nil
9728	E.M.I.		Amateur Grade	£11.00	nil
$\frac{3}{4}$ " 9831	E.M.I.		Amateur Grade	£11.00	nil
4½" Image Orthicons	E.M.I.	9565		£10.00 for two buyer collects	
Coils 1"	B.A.T.C. coils			£ 9.00	48p
$\frac{3}{4}$ " E.M.I. coils				£11.00	48p
Paxolin vidicon sockets				.20p	8p
C mount for lens				.50p	10p
Lapel Badges				.40p	8p
Adhesive Badges				.15p	8p
Paper and envelopes				£ 1.00	46p
Reporting Charts				.6p	8p
EEV Camera Chart				£ 1.65	30p
B.A.T.C. Test card				.50p	6p
Film strips of past CQ-TVs				£1.20	10p
Windscreen Stickers				.6p	8p
CQ-TV SPG printed circuit boards undrilled £1.75 Drilled £2.75					8p
CQ-TV SPG genlock pc boards undrilled £1.75 drilled £2.75					8p

Rapidly increasing postal charges have compelled us to quote the above post and packing charges. Will overseas members please ask for a quotation before sending cash. Obviously for small items such as lapel badges, adhesive emblems, windscreen stickers etc. one can send several items for the same price as one - please try and estimate the right amount. Our thanks go to those members who estimate on the high side and suggest that any balance can be put to club funds.

Please send orders to C.G. Dixon (B.A.T.C. Club Sales)  
"Kyres Cross"  
Peterstow,  
Ross-on-Wye, Herefordshire.

### CLUB PUBLICATIONS

This is a separate department of the Club, do not send orders for publication to Club Sales, send orders to B.A.T.C. Publications

64 Showell Lane  
Penn  
Wolverhampton  
Staffordshire.

Slow Scan Television by B. J. Arnold G3RHI published by B.A.T.C. 2nd edition. 35p + 8p p&p  
Slow Scan Television Handbook by Don Miller & Ralph Taggart £2.50 + 35p p&p (overseas post rates on request)

C Q - T V back issues are post free in U.K. Currently available Nos 66-71 & 73-92 25p each, current, (93 onwards) 50p.

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